

WHAT IS CLAIMED IS:

1. A device for coupling a signal onto a conductor of an electrical power delivery system, the device comprising:
  - a conductive member having a length of at least six inches but less than 200 feet; and
  - 5 a data signal generator connected to the conductive member for supplying a data signal to the conductive member;
  - wherein the conductive member is adapted to capacitively couple the data signal onto the conductor.
2. The device of claim 1 wherein the conductive member comprises a cable adapted to be positioned adjacent the conductor.
3. The device of claim 2 wherein the conductive member is formed from a piece of common insulated cable.
4. The device of claim 1 wherein the conductive member comprises a conductive medium wrapped about the conductor.
5. The device of claim 1 wherein the conductive member comprises an outer layer of a coaxial cable; and wherein an inner conductor of the coaxial cable is adapted to be connected to the conductor of the electrical power delivery system.
6. The device of claim 5 wherein an end of the inner conductor is adapted to be connected to a neutral wire or a ground wire.

7. The device of claim 1 wherein the conductor comprises a neutral wire or a ground wire of the electrical power delivery system; and wherein the conductive member is adapted to capacitively couple the data signal onto the neutral wire or the ground wire.

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8. The device of claim 1 wherein the conductor comprises a grounding wire of a surge arrester and wherein the conductive member comprises a conductive medium adapted to be wrapped around the grounding wire.

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9. The device of claim 1 wherein the conductor comprises a phase conductor of the electrical power delivery system; and wherein the conductive member is adapted to capacitively couple the data signal onto the phase conductor.

10. The device of claim 1 wherein the length of the conductive member is at least 12 inches but less than 100 feet.

11. The device of claim 1 wherein the length of the conductive member is at least 2 feet but less than 50 feet.

12. The device of claim 1 wherein the length of the conductive member is at least 2 feet but less than 10 feet.

13. The device of claim 1 wherein the length of the conductive member is at least 2 feet but less than 6 feet.

14. The device of claim 1 further comprising an insulator adapted to be positioned between the conductive member and the conductor.

15. The device of claim 1 wherein the conductive member is adapted to be positioned along the conductor such that a capacitive coupling measured between the conductive member and the conductor is greater than 5 pF/cm.

16. The device of claim 15 wherein the capacitive coupling measured between the conductive member and the conductor is greater than 10 pF/cm.

17. The device of claim 15 wherein the capacitive coupling measured between the conductive member and the conductor is greater than 15 pF/cm.

18. The device of claim 1 further comprising a resistor connected in series with the conductive member and the data signal generator.

19. The device of claim 1 having no magnetic core for coupling the data signal onto the conductor.

20. A device for capacitively coupling a signal onto a conductor of an electrical power delivery system, the device comprising:

5 a conductive member adapted to be positioned along the conductor;

an insulator adapted to be positioned between the conductive member and the conductor;

10 wherein the capacitive coupling measured between the conductive member and the conductor is greater than 5 pF/cm.

21. The device of claim 20 wherein the capacitive coupling measured between the conductive member and the conductor is greater than 10 pF/cm.

22. The device of claim 20 wherein the capacitive coupling measured between the conductive member and the conductor is greater than 15 pF/cm.

23. A method of installing a device for capacitively coupling a signal onto a conductor of an electrical power delivery system, the method comprising the steps of:

5       selecting a conductive member having a length of at least six inches but less than 200 feet; and

      providing a data signal generator to supply a data signal to the conductive member; and

      positioning the conductive member to capacitively couple the data signal onto the conductor.

24. The method of claim 23 wherein the selecting step further comprises selecting an insulated conductive member.

25. The method of claim 23 wherein:

      the selecting step further comprises selecting a cable; and

5       the positioning step further comprises positioning the cable adjacent to the conductor so that the cable capacitively couples the data signal onto the conductor.

26. The method of claim 23 wherein:

      the selecting step further comprises selecting a length of coaxial cable; and

5       the providing step further comprises providing a data signal generator to supply a data signal to an outer layer of the coaxial cable; and

      the positioning step further comprises connecting an inner conductor of the coaxial cable to the conductor of the electrical power delivery system.

27. The method of claim 26 further comprising connecting an end of the inner conductor to a neutral wire or a ground wire.

28. The method of claim 23 wherein the positioning step further comprises positioning the conductive member along the conductor so that a capacitive coupling measured between the conductive member and the conductor is greater than 10 pF/cm.

29. A device for coupling a signal onto an elongated conductor of an electrical power delivery system, the device comprising:

an elongated conductive member adapted to be positioned in parallel with the elongated conductor; and

a data signal generator connected to the elongated conductive member for supplying a data signal to the elongated conductive member;

wherein the elongated conductive member is adapted to capacitively couple the data signal onto the elongated conductor.

30. A device for detecting a data signal coupled onto a conductor of an electrical power delivery system, the device comprising:

a conductive member having a length of at least six inches but less than 200 feet; and

a detector connected to the conductive member for detecting the data signal from the conductive member;

wherein the conductive member is adapted to be capacitively coupled to the conductor.

31. The device of claim 30 wherein the conductive member comprises a cable adapted to be positioned adjacent the conductor.

32. The device of claim 31 wherein the conductive member is formed from a piece of common insulated cable.

33. The device of claim 30 wherein the conductive member comprises a conductive medium wrapped about the conductor.

34. The device of claim 30 wherein the conductive member comprises an outer layer of a coaxial cable; and wherein an inner conductor of the coaxial cable is adapted to be connected to the conductor of the electrical power delivery system.

35. The device of claim 34 wherein an end of the inner conductor is adapted to be connected to a neutral wire or a ground wire.

36. The device of claim 30 wherein the conductor comprises a neutral wire or a ground wire of the electrical power delivery system.

37. The device of claim 30 wherein the conductor comprises a grounding wire of a surge arrester and wherein the conductive member comprises a conductive medium adapted to be wrapped around the grounding wire.

38. The device of claim 30 wherein the conductor comprises a phase conductor of the electrical power delivery system; wherein the elongated conductive member is adapted to capacitively couple the data signal onto the phase conductor.

39. The device of claim 30 wherein the length of the conductive member is at least 12 inches but less than 100 feet.

40. The device of claim 30 wherein the length of the conductive member is at least 2 feet but less than 50 feet.

41. The device of claim 30 wherein the length of the conductive member is at least 2 feet but less than 10 feet.

42. The device of claim 30 wherein the length of the conductive member is at least 2 feet but less than 6 feet.

43. The device of claim 30 further comprising an insulator adapted to be positioned between the conductive member and the conductor.

44. The device of claim 30 wherein the conductive member is adapted to be positioned along the conductor such that a capacitive coupling measured between the conductive member and the conductor is greater than 5 pF/cm.

45. The device of claim 44 wherein the capacitive coupling measured between the conductive member and the conductor is greater than 10 pF/cm.

46. The device of claim 44 wherein the capacitive coupling measured between the conductive member and the conductor is greater than 15 pF/cm.

47. The device of claim 30 further comprising a resistor connected in series with the conductive member and the data signal generator.

48. The device of claim 30 having no magnetic core for coupling the data signal onto the conductor.

49. A device for detecting a signal coupled onto a conductor of an electrical power delivery system, the device comprising:

5 a conductive member adapted to be positioned along the conductor; and

an insulator adapted to be positioned between the conductive member and the conductor;

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wherein the capacitive coupling measured between the conductive member and the conductor is greater than 5 pF/cm.

50. The device of claim 49 wherein the capacitive coupling measured between the conductive member and the conductor is greater than 10 pF/cm.

51. The device of claim 49 wherein the capacitive coupling measured between the conductive member and the conductor is greater than 15 pF/cm.

52. A method of installing a device for detecting a data signal coupled onto a conductor of an electrical power delivery system, the method comprising the steps of:

selecting a conductive member having a length of at least six inches but less than 200 feet;

positioning the conductive member to capacitively couple the conductive member with the conductor; and

providing a data signal detector to detect the data signal from the conductive member.

53. The method of claim 52 wherein the selecting step further comprises selecting an insulated conductive member.

54. The method of claim 52 wherein:

the selecting step further comprises selecting a cable; and

5 the positioning step further comprises positioning the cable adjacent to the conductor so that the cable and the conductor are capacitively coupled.

55. The method of claim 52 wherein:

the selecting step further comprises selecting a length of coaxial cable; and

5 the providing step further comprises providing a data signal detector to detect the data signal from an outer layer of the coaxial cable; and

the positioning step further comprises connecting an inner conductor of the coaxial cable to the conductor of the electrical power delivery system.

56. The method of claim 55 further comprising connecting an end of the inner conductor to a neutral wire or a ground wire.

57. The method of claim 52 wherein the positioning step further comprises positioning the conductive member along the conductor so that a capacitive coupling measured between the conductive member and the conductor is greater than 10 pF/cm.

58. A device for detecting a data signal coupled onto an elongated conductor of an electrical power delivery system, the device comprising:

5 an elongated conductive member adapted to be positioned in parallel with the elongated conductor; and

a data signal detector connected to the elongated conductive member for detecting the data signal from the elongated conductive member;

10 wherein the elongated conductive member is adapted to be capacitively coupled to the elongated conductor.